

# A RECORD OF INDIAN FEVERS.

BY

MAJOR D. B. SPENCER,  
INDIAN MEDICAL SERVICE (BENGAL).

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WITH THE AUTHOR'S COMPLIMENTS.

A RECORD OF  
INDIAN FEVERS:

WITH

*SOME HINTS ON THEIR ETIOLOGY, DIAGNOSIS AND  
TREATMENT*

BY

MAJOR D. B. SPENCER,  
*Indian Medical Service (Bengal).*

*WITH 16 CHARTS.*

Calcutta:

THACKER, SPINK & CO.

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## INTRODUCTION.

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HAVING paid special attention to the subject of Indian fevers and having now in my possession a large number of fever charts, which I have been collecting for some years past, both in hospital and private practice, I have endeavoured in the following pages to record my experience of the subject and to put some of the charts in book-form, arranging them so that they may serve as a sort of guide in the diagnosis of fevers to those who may not be familiar with the subject.

The diagnosis is not always an easy matter. In India, especially, where malaria in its endless forms may be said to underlie and exert its influence on nearly every disease, this difficulty is often enhanced. Still, I think, with a little care and method an early and correct diagnosis can be formed in nearly every case by strict attention to the previous history, the temperature chart, and the clinical features of the case, even without the aid of a microscope.

I have also endeavoured to explain my views of the etiology of what I should call "Tropical Fever," a fever of which I find no mention either in the Nomenclature of Disease or in any text-book that I know of. It is, I think, one of the unclassified fevers of India distinct in its etiology from either malarial or true enteric fever, although, clinically it may resemble either.

I have also brought to the notice of the medical profession one or two drugs which I think are of some value in the treatment of malarial fevers.

ALIPORE :

D. B. S.

19th April 1899.





## CONTENTS.

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	<i>Page.</i>
Some Remarks on Simple Continued Fever   ...   ...	1
Tropical Fever : its Definition and Etiology   ...   ...	3
The Relation of Tropical to Enteric Fever   ...   ...	7
Some Hints on Differential Diagnosis and Treatment ...	11
Synopsis of Indian Fevers   ...   ...   ...   ...   ...	13
Analysis of Indian Fevers—	
Simple Continued Fever...   ...   ...   ...   ...	14
Intermittent Fever   ...   ...   ...   ...   ...	15
Remittent Fever ...   ...   ...   ...   ...	18
Chronic Ague   ...   ...   ...   ...   ...	24
Typho-Malarial Fever ...   ...   ...   ...   ...	25
Tropical Fever   ...   ..   ...   ...   ...   ...	27
Enteric Fever   ...   ...   ...   ...   ...   ...	34
Synopsis of Treatment   ...   ...   ...   ...   ...	36



## SOME REMARKS ON SIMPLE CONTINUED FEVER.

THIS fever has been mentioned in the Nomenclature ; it is also mentioned in text-books. There appears, however, to be a wide divergence of opinion as regards the exact significance of the disease, for, while according to some writers, it is a mild form of fever lasting for two or three days, according to others it may last as many weeks.

The following is the book view of the disease :—

“The temperature rapidly ascends usually to a moderate height, but it may reach  $102^{\circ}$ ,  $103^{\circ}$ , or even  $104^{\circ}$  in a few hours. This high temperature, however, if it occurs, only lasts for a short time usually, often but a few hours or at most one or two days and then it falls rapidly.” (*Roberts.*)

The following is another view of the disease taken from Manson’s *Tropical Diseases*, a book recently published :—

“Simple continued fever generally, if not invariably, commences with a rigor, the temperature rapidly or more slowly mounting to  $104^{\circ}$ ,  $105^{\circ}$ , or even  $106^{\circ}$ . There is headache, malaise, a white furred tongue, anorexia, thirst and perhaps vomiting. The fever lasts usually from three to eight days, occasionally it is prolonged for two, three or four weeks.”

Now, as far back as 1887, Brigade-Surgeon J. B. Hamilton, then in medical charge of the Station Hospital at Lucknow, in referring to simple continued fever, wrote as follows :—

“This disease has practically disappeared from the admissions of this hospital, but one case being shown under this head

for 1887. I have long doubted the existence of any such disease. The existence of the term in the Official Nomenclature is, in my opinion, a mistake ; as it leads to incorrect diagnosis and many cases of mild or badly marked enteric fever are entered under the heading "Simple," because the term is a convenient one and saves trouble in diagnosing doubtful cases. With one exception, every case was shown to be either enteric fever or of a distinctly intermittent nature and due to malaria."

Again Surgeon-Captain Whitehead, Army Medical Staff, in his able essay on Tropical Typhoid Fever, says :—  
"These abortive attacks of typhoid fever are frequently returned as simple continued fever, a term which seems to be a very elastic one and under which many of the various continued fevers due to a specific cause are wrongly placed."

On referring to the statistics of British hospitals, I find that in the quinquennial period, 1893-97, no less than 1,827 cases were returned under simple continued fever from seven hospitals alone. It would be interesting to know on what grounds the diagnosis was made and what the duration of the fever was in those cases ? The subject is one which I think calls for an enquiry.

I adhere to Roberts' view of this fever, and I should define it as a mild form of fever not due to any specific infection, unattended by any complications and with a duration not exceeding three or four days. These cases in my experience are extremely rare in India. Chart I, given at the end, shows a fairly typical case—one of the few I have treated.

No fever, I think, can last much longer without some definite cause, and as uniformity in diagnosis is essential for the value of the statistics of a disease, I hope this question will be taken up by others abler and better informed than myself with a view to arrive at some sort of definite conclusions.

## TROPICAL FEVER.

I MUST premise by saying that, in introducing this fever to the medical profession, I make no dogmatic assertions. The following description is merely an expression of my opinion founded on my clinical experience, and it must be taken for what it may be worth :—

*Definition.*—A fever of a continued type with an average duration of a week, liable to internal complications such as pneumonia or enteritis, not of malarial origin, nor true enteric fever, although clinically it may resemble either, neither contagious nor infectious, and caused by severe blood-poisoning from the intestinal canal in the manner described in the etiology.

*Etiology.*—In a tropical country like India the skin plays a more important part in health than it does in a temperate or cold climate. Its action is vicarious with that of the kidneys. This, I think, is the key to this fever, and is a point the importance of which is not sufficiently recognised by the medical profession generally.

In a tropical climate the skin removes various effete matters from the blood, and when this eliminative function is from any cause disordered, whether it be from exposure to sun or from exposure to cold and a general chilling of the body and these causes are common enough in India, it follows that these effete matters are either retained or thrown back into the blood. The blood is poisoned and the fever which starts is the outward expression, so to speak, of this blood-poisoning. The next step, I think, is a disordered function of the liver sympathetically with that of the skin, for the liver, like the skin, is one of the important emunctories



and removes chiefly the disintegrated hæmoglobin. The result is further blood-poisoning. These conditions may exist in all other fevers, but now comes the chief step which is a special feature of this fever. Following upon a disordered function of the skin and liver, fermentation and putrefaction of the contents of the intestinal canal rapidly take place; ptomaines and other deleterious products of unknown but probably definite chemical composition are manufactured in the laboratory, so to speak, of the intestinal canal; and it may be assumed with reasonable certainty that some of these products, including putrescent gases, find their way into the general circulation through the venous and lymphatic capillaries of the intestinal canal, and that one of these substances—it may be more than one—is a pyrogenetic substance, the continual formation and presence of which in the blood helps in maintaining the fever until the patient dies or the *vis naturæ mediatrix* asserts itself and the poison is thrown out of the system by the excretories.

The subject of intestinal poisoning is not new. It has been fully described in that excellent book “Disorders of Digestion,” 1893 Edition, published by Messrs. MacMillan & Co. The author (Lauder Brunton) in referring to this subject under the heading of “Intestinal Sewage Poisoning,” says:—

“We are now completely alive to the important results produced by the absorption from the intestinal canal of poisonous matters such as typhoid germs, arsenic, or strychnine introduced into it from without. But perhaps we are not yet sufficiently alive to the important results produced by the absorption from the intestinal canal of substances generated in it by fermentation or imperfect digestion. We recognise the danger of breathing gas from a sewer, but probably we do not sufficiently realise that noxious gases may be produced in the intestine, and being absorbed from it into the circulation may produce symptoms of poisoning.”



If this is true in certain conditions of health without a febrile manifestation, how much more likely is this to be the case in fevers, with a disordered state of the secretions and a high temperature? I am convinced this intestinal poisoning is an important factor in various fevers of indeterminate etiology, and my attention was first drawn to it in 1889, long before I knew anything of the subject, in a fatal case of fever of which I made a *post-mortem*, a case in which I was unable to form an accurate diagnosis during life on a clinical basis. The temperature chart and full particulars of this case I have given further on. (Chart VIIIa).

Who has not noticed the foul tongue, the offensive breath, the offensive stool, the offensive flatus at the bed-side of a patient in a bad case of fever? These, I think, are Nature's monitors which tell us pointedly what is going on in the intestinal canal and it is for the physician to interpret these signs correctly.

There are one or two other factors, which, though not special to Tropical Fever, are, I think, of some importance in the pathology of fevers generally, and as they are not sufficiently clearly explained in text-books, I will venture to refer to them here. One is the accumulation of urea in the blood from increased tissue metamorphosis resulting from high temperature coincident with defective action of the emunctories. The other is the accumulation of heat in the blood and tissues consequent upon a disorder of the vaso-motor nerves which regulate the supply of blood to the skin. Heat is constantly formed in the blood and tissues as the result of what is called metabolism, a term which signifies the sum total of the chemical changes which take place in the body, and one of the most important functions of the skin is to remove this body-heat by evaporation of the sweat, a function which is almost entirely under the control of the vaso-motor nerves. The body may be compared to a

boiler and the skin is its safety-valve. It will be easy to understand from this, how in a tropical country like India, where the skin function is much more important than it is in a cold country, any disorder of this function may give rise to the most serious consequences. What means the hot dry skin, we so often hear of, in a case of fever? It means that heat is rapidly accumulating in the blood and tissues of the fever-stricken patient—and this point, I do not think, is sufficiently made clear in any text-book that I know of.

Now, whether the views I hold of Tropical Fever be right or wrong, time alone will tell. I can only say that I have based these views on my knowledge of physiological and pathological facts, strengthened by long clinical experience of a subject to which I have devoted special attention, and that here and there I find a case of fever which I cannot conscientiously call simple continued fever, malarial, or enteric fever. No doubt, I think, other unrecognised fevers exist in India—such as the “Low Fever” of Crombie and the “Undulant Fever” of Hughes. The former, I think, I have recognised; the latter may possibly have escaped my observation. I will only mention hæmoglobinuric fever to say that I have never seen a case of it in India or in any part of the tropics where I have served, *viz.*, Beluchistan, Soudan, Burma and Lushai. I have seen Relapsing Fever and Cerebro-spinal Fever in India, but unfortunately I have no notes or charts in my possession, or I should have included them in my list. It must be understood clearly that I am recording my experience, not writing a “Text-book on Fevers.”

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## THE RELATION OF TROPICAL TO ENTERIC FEVER.

THE term "Tropical" I have given only provisionally for want of a better name, this fever being, I think, one of the unclassified fevers of the tropics, though I do not think, it is impossible, it may occasionally occur in cold or temperate climates. It may be called "Ptomaine Fever," though the peculiar pyrogenetic substance which probably gives rise to this fever is not formed without an initial disorder of the skin-function as already explained.

A better name, I think, would be Tropical Typhoid, but I see this name has been already used by Whitehead for the enteric fever of India which, if I understand his views correctly, is, in the main, identical with the enteric fever of cold climates.

The resemblance between enteric fever and the fever I have described as "Tropical" is certainly very great. In enteric fever the *materies morbi* is formed in sewage matter external to the body ; in tropical fever it is formed in sewage matter within the body. In saying so, I am assuming, of course, that true enteric fever can be caused by ordinary decomposing sewage matter without the presence of the specific bacillus (Eberth's), a view which was held years ago by Murchison and shared by a large body of medical men in Europe, and which has, I think, recently gained ground from the fact that a disease exactly identical with enteric fever has hitherto seldom been produced in the lower animals by inoculation with pure cultures of the bacillus, and secondly, from the fact that it is seldom

found in the food, usually drinking water, suspected to be the cause of the disease.

In the late Belfast and Maidstone epidemics, although it was beyond doubt that the water-supply was the cause of the epidemics, the specific bacillus, as far as I know, was not detected.

Clinically also, there is great resemblance between enteric and tropical fevers, as will appear from the description of the case of tropical fever of which No. VIII(*a*) is the temperature chart.

There is, however, this important clinical difference that tropical fever is very amenable to an eliminative treatment which will cut short its duration to about eight to ten days, sometimes even less; and that a recovery may safely be expected in every case—not so in enteric fever. It is only when its nature is not understood early and an expectant treatment applied to it—by which I mean a treatment of symptoms as they arise combined with nursing and feeding—that tropical fever may continue for two or three weeks or longer, *vide* Chart VIII (*a*) and a fatal result with ulceration of the intestines may ensue as occurred in the case VIII (*a*) same as in enteric fever. The whole thing depends, in fact, upon the treatment.

These considerations have led me to think that the enteric fever of British troops and Europeans generally, in India, may in some cases be identical with Tropical Fever, by which term must be understood a fever caused by the absorption from the intestinal canal of putrefaction products as already explained in the etiology of the disease, and if this theory be accepted, it will, at all events, help to clear away the many doubtful and difficult points connected with the enteric fever question of India. Unfortunately, I have no means of verifying my belief, for I belong to the Indian service and my experience is confined entirely to the Native Army.



That true enteric fever, that is, one absolutely identical with that of Europe and other cold and temperate climates exists in India, no sane man can doubt. I have seen a few typical cases. Chart No. IX represents one of these cases. But though it may seem a bold thing to say, I must confess that, in my opinion, it is the exception and not the rule in India, for the conditions which give rise to enteric fever do not exist in Indian cantonments where these cases constantly occur, nor are the clinical features of the disease as seen in India always identical with those of true enteric fever as seen in Europe, and it is only reasonable to pause and consider these points and explain them satisfactorily before accepting, as a fact, the identity of the enteric fever of India with that of Europe in all cases.

Milk, water, and aerated waters usually get the blame, but in how many cases, say out of every 100, diagnosed as enteric, is it proved that one of these was the actual cause? When Tommy Atkins gets it, it is easy to put it down to ginger pops made in bazars or cities where filth conditions prevail, but how are we to reconcile the fact that a number of young officers and young ladies who have probably never been near a bazar or city in India, and who are most careful how they live, are not exempt from this terrible disease?

On referring to the statistics of British troops in India, I find that in the quinquennial period, 1893-97, there were 1,985 admissions for enteric fever from seven British hospitals alone and that of these 520 died, a mortality of 26 per cent. These figures are truly appalling, and it seems strange to me as it must to others, that with so many cases it is seldom that the disease can be satisfactorily traced to its source of infection, due allowance being made for all difficulties. Let us hope that the Widal test will, in future, be systematically applied in all suspected cases of enteric fever, for it may throw some light on the accuracy of the diagnosis of these cases.

In giving expression to these views, I am aware of the fact that they are diametrically opposed to the views of the majority of medical men in India ; but I can only write what I think is the case, and it is some comfort to know that others have shared these views. The doubts and difficulties with which the subject is invested are fully explained by Whitehead in his essay on Tropical Typhoid Fever in Davidson's book. Not long ago, Sir Joseph Fayrer, speaking at Trinity College, Dublin, in referring to the subject of Enteric Fever among British troops in India, expressed similar views, while among my many friends in the sister service I know of at least one senior officer who has his doubts on the subject.

The Annual Reports of the Sanitary Commissioner with the Government of India for some years past will likewise show that medical opinion in India is not always unanimous as regards the exact nature and causation of this disease.

I mention these points not in a controversial or dogmatic spirit, but simply in the hope that it may invite a friendly discussion in a scientific spirit of the many doubtful points connected with this difficult subject by those most competent to form an opinion.

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## SOME HINTS ON DIFFERENTIAL DIAGNOSIS AND TREATMENT.

MORE can be understood and learnt of this part of the subject by following a few cases from day to day in a fever ward than from any verbose descriptions of signs and symptoms as described in text-books. No doubt pathognomonic symptoms exist in fevers as in other diseases, and when they do, the diagnosis will be easy ; but often they are absent and the physician will have to depend upon his clinical experience and common sense in arriving at a correct diagnosis.

Thinking over this part of the subject, I feel that the best way in which I can achieve my object, will be to take each temperature chart separately or a group of charts as given at the end and give my reasons for the diagnosis. I will analyse my cases one by one and let the reader judge for himself whether he considers my diagnosis right or wrong.

Before I do this, however, I must clear the ground by saying a few words as regards the terms "Intermittent," "Remittent" and "Continued" types, so frequently used in the description of fevers.

There can be, I think, no mistake about the meaning of the term "Intermittent," but I am not so sure about the term "Remittent." When one speaks of Remittent fever, it invariably means the remittent form of malarial fever as opposed to the Intermittent form of the same disease and the term is used because of the morning remissions usual in that fever. But Remittent fever is often just as much a continued fever as enteric fever or other fevers

of a continued type. You can say with equal truth that in enteric fever you see morning remissions same as in remittent fever, these remissions being most marked in the third week when the disease becomes almost intermittent in type, but you do not for that reason call enteric fever a fever of remittent type. It must be clearly understood, therefore, that remittent fever is a continued type of fever, and that the term is used simply in contradistinction to the intermittent type of the disease and not because remissions are a special feature of the affection. I point this out here, because in the following description I have used the expression "Continued Type" in speaking of Remittents, and if I did not explain this point, there would be some confusion in understanding my meaning.

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## SYNOPSIS OF INDIAN FEVERS :

Chart I Simple Continued Fever—Synonym Febricula  
Ephemeral Fever.

- „ II Quotidian Ague.
- „ III Tertian Ague.
- „ IV Quartan Ague.
- „ IV (a) Irregular Type (Malarial).
- „ V (a) Remittent Fever (severe type).
- „ V (b) Ditto (with hyperpyrexia.)
- „ V (c) Ditto (ordinary type.)
- „ V (d) Ditto (low type).
- „ VI (a), (b) Chronic Ague.
- „ VII Typho-malarial Fever.
- „ VIII (a), (b), (c) Tropical Fever. Synonym, Climatic  
Fever ; Tropical Typhoid ; Ptomaine Fever.
- „ IX Enteric Fever.

Total 16 Charts.

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CHART I.

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## SIMPLE CONTINUED FEVER.

TAKE now Chart No. I—Simple Continued Fever. In this particular case the absence of any previous malarial history, the absence of any shivering fits which, although they may occur in any fever, are special to malarial fevers—the healthy time of the year (April) when malarial fevers are not prevalent and the characteristic temperature chart (when once the fever began to fall it went on falling gradually to the normal line and never rose again), left no doubt in my mind that the malarial element was absent in this case, while the brief duration of the fever showed that it was simple continued fever. It could not have been anything else, there was no local or general condition of the body to account for the fever. It is true that a single 5-grain dose of quinine was given in this case but that was only after the temperature had nearly returned to normal, and it was given more as a tonic and internal antiseptic than as an antiperiodic, so it does not in any way vitiate the accuracy of the diagnosis. If this case had the malarial element present in it, most probably there would have been a second rise of temperature after the temperature had commenced falling, and this second rise is, in my opinion, a diagnostic sign of great value as showing generally some form of malarial infection. All these little details it has taken me years to find out because books don't teach them.

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## CHARTS II, III, IV, IV (a).

## INTERMITTENT FEVER.

TAKE now the group of Charts II, III, IV, IV (a)—Intermittent Fevers. It is only necessary to see these charts once to recognise these fevers for a whole life-time. The diagnosis can easily be made in each case from the temperature charts alone from the periodicity of these fevers without the aid of any other sign or symptom. In these cases the presence of shivering fits, the enlargement of the spleen, the rapid anæmia, all confirmed the diagnosis. The only fever which might be mistaken for quotidian ague is hectic fever, but in hectic fever some local or general condition must exist to account for the fever, and sooner or later it will be recognised when it exists. Turning now to the question of treatment, I think, quinine is almost an absolute specific in these intermittent fevers and has no equal. In very few instances it fails, however, and then there will generally be found a history of severe antecedent malarial infection with marked splenic enlargement. Thus, in Case No. 4, quartan ague, which I saw in Burma, quinine had a fair trial both alone as well as combined with arsenic, but it failed. In this case, the man's constitution was pretty well shattered by previous repeated attacks of irregular ague and the spleen was much enlarged. Death was very busy in those days (1887) chiefly from severe remittents, and this man who happened to be my hospital sweeper was, I could see, on his last legs.

I thought this was a good case in which to try *neem* oil, not that I thought he would necessarily recover, for the poor man was very bad indeed, but because I didn't know what else to do for him. I gave this drug thinking that perhaps it might hit it off—*neem* being a well-known antiperiodic, and the result was truly marvellous. I am sure this



drug saved his life and the effect was not temporary but permanent, for he served with the hospital in Burma for nearly two years after his recovery, and eventually returned to India in the best of health. This was my first case. Since 1887, I have tried this drug internally in a sufficient number of cases to enable me to form an opinion, and I have no hesitation in saying that this is a drug of undoubted value in the treatment of those chronic and obstinate forms of malarial fevers which do not yield to quinine or arsenic alone or combined. Quite lately I have treated a few very obstinate cases of chronic ague in which even *neem* oil had no effect after quinine and arsenic had been tried. It must not be supposed, therefore, that this drug is a panacea for all cases of chronic malarial fevers, when quinine and arsenic fail to bring about a cure. In a case of this nature I have lately tried a combination of quinine, arsenic and *neem* with gratifying results. But further experience is necessary before I can speak with certainty of the results of these combinations in apparently hopeless cases.

Messrs. Lazarus & Co., Chemists and Druggists, Benares Cantonment, can supply this oil in the pure state. The dose is from 5—10 minims for an adult, and milk is the best vehicle in which to administer it. If milk cannot be borne, aqua chloroformi, aqua mentha, or aqua myristica will do equally well. As a rule the total quantity administered should not exceed twenty minims divided up into two or three doses in the 24 hours. It is a powerful drug and contains the active principle of the *neem* or margosa tree in a highly concentrated state. Should symptoms of gastrointestinal irritation appear, as they sometimes do, the drug should be discontinued for a time or its quantity may be lessened. Tons of this oil can be readily manufactured in India, as the *neem* tree (*azadirachta indica*) grows all over India in the plains, and the process of expressing the



oil from the berries is extremely simple. The Indian jails ought to be able to supply this oil. Some years ago, when I was Superintendent of a district jail in the Central Provinces, I tried the experiment with success. The old and infirm prisoners who could do nothing else were made to collect the berries of *neem*, and the ordinary oil-pressing machine of an Indian Jail was used for expressing the oil. The berries should be collected in the season, July to August, and they must be ripe. The bark and leaves have long been known as tonics and antiperiodics, but I do not know if anybody has ever used the oil internally.

I may mention here that *neem* oil is not only a powerful antiperiodic but that it is also a powerful alterative in leprosy and chronic syphilitic affections. Diluted with equal parts of some bland oil like olive oil or almond oil, it is likewise extremely valuable, applied externally in the treatment of leprosy and *syphilitic* sores.

Another remedy of some value in the treatment of chronic ague is the *Argemone Mexicana*, the Mexican poppy, a weed which grows luxuriantly near every Indian village in the plains. The juice of the leaves given internally in doses of two drachms each has, in some cases, a specific effect. Temperature Chart IV (a) shows a case lately treated with this drug.

In this particular case, the drug had certainly a wonderful effect while quinine seemed to aggravate his discomfort while making no impression upon the disease and had to be stopped completely. Further experience is, however, necessary before I can confidently recommend this drug.

Manson informs us that quinine has no effect upon the crescent forms of malarial infection, *i.e.*, these crescents do not disappear from the blood under the quinine treatment like

the benign tertian and quartan forms of malarial parasites which do disappear.

It is possible, I think, that *neem* oil may have some specific effect upon these forms which quinine has not ; but the oil must be used, not the bark or leaves, and it ought to prove interesting to bacteriologists to find out whether this is the case.

To summarise, then, periodicity is the principal and the special feature of all intermittent fevers, while shivering fits, marked anæmia and splenic enlargement are the most common concomitants of this affection when it lasts for any length of time, and, as regards treatment, quinine is in the majority of cases an absolute specific. When it fails, the other remedies arsenic, *neem* oil, and argemone may be tried with advantage.

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#### CHARTS V (a), (b), (c), (d).

Take now the next group of cases—V (a), (b), (c), (d)—Remittent Fever. What are the chief points in the diagnosis? I should say (1) the time of the year which is generally between September and December. In some places it may be a little earlier, in others a little later, according to the geographical position of those places.

Thus, in Upper Burma (Bhamo), where I saw a good deal of this fever, cases began coming into hospital from July, and by the end of August the hospital was pretty full.

In Bareilly, on the other hand, where I was stationed in 1895-98, cases began coming into hospital from September, and, I think, November was the worst month, the disease gradually dying out in December. In either case, it is in the rains or after the rains during the drying season that this disease generally makes its appearance.

(2) The next point is the mode of invasion which is almost invariably sudden and sharp. This point is of importance to distinguish this fever from the other continued fever (enteric) in which the invasion is slow and gradual. The gradual ladder-like rise is typical of enteric fever, and I do not remember having ever seen it in malarial fevers whether remittent or intermittent, although I must have now seen over 3,000 cases of malarial fevers. It is, I think, a diagnostic point of great value in doubtful cases.

(3) The next point to consider is the previous history of the case. In Remittents there is often a history of antecedent ague, although the absence of such history will not prove that it is not Remittent fever. Where a strong malarial history exists and the fever is of a continued type—the probability will be that the case is one of remittent fever, and if in addition there is a sudden and sharp rise of temperature with severe constitutional disturbance, the probabilities will be increased ten-fold. If in addition to these there be enlargement of spleen, rapid anæmia, and a quinine treatment acting favourably upon the course of the fever, the diagnosis will be confirmed.

(4) The duration of the fever is another point of importance. In unfavourable cases death generally occurs by the eighth day ; in favourable cases recovery generally takes place by the twelfth or thirteenth day. This is my experience of Remittents. When, therefore, a fever of a continued type lasts longer than a fortnight, one must at least suspect that the fever may be enteric or it may be typho-malarial, or some other fever, *vide* Charts VII and IX. The duration, therefore, is, I think, a point of considerable importance, and when considered with the other clinical features which may be absent or present, will often throw a great light on a doubtful case. In the four cases of Remittents I have given, the durations were eight, nine and

thirteen days (in two cases), all under a fortnight, two occurred in October and one in July, during the unhealthy season when malarial fever is prevalent. The fourth case occurred in June at Bareilly—not a feverish time of the year—but in this particular case the previous history was bad, the spleen was also enlarged, and so the history in this case was a valuable guide. The hyperpyrexia ( $109\cdot2^{\circ}$ ) in this case, it may appear at first sight, was due to the pneumonia and so it may have been ; but if I were asked, I should say the pneumonia was the result not the cause of the hyperpyrexia, for, in continued fevers, it does not matter what particular kind it is—there is severe congestion of internal organs which may rapidly pass on into inflammation, and the lung is peculiarly susceptible in the continued fever of Remittents, pneumonia being a common complication of this disease.

In all four cases the invasion was sudden and a rigor present—so that all the points I have alluded to were present in these cases and I based my diagnosis accordingly.

With regard to the treatment of Remittents, quinine, I do not think, is half so efficacious as in the treatment of Intermittent Fever. It often fails to produce the desired effect in bad cases whether given by the mouth or subcutaneously, and these cases generally end fatally. On looking over the statistics of my hospital for the last ten years, I find that of 96 cases of Remittents treated during that period 10 died—a mortality of a little over 10 per cent. For hypodermic injections, quinine hydrochloro-sulphas, and quinine hydrobromidum acidum are the best salts, being freely soluble in water and unirritating. When quinine fails, Warburg's tincture is a drug well worth trying, although, strange to say, it is practically another name for quinine. It is, as far as I know, a combination of quinine with aloes and aromatics. I give half ounce for a dose without diluting it with water and repeat it after two hours. In



favourable cases there will be profuse sweating and a lowering of the temperature with an improvement in the general symptoms. Chart VII, Typho-malarial Fever, is a good illustration of the value of this drug. This case was at death's door on the evening of the 28th day when the temperature reached 106° Fahr., the highest point in the Chart of the case. I had tried everything I knew, and I thought she would die that night. This was a case in private practice. The next morning the temperature was 95°. General condition very low and unfavourable. I gave her an ounce of Warburg's tincture divided into two doses of half an ounce each without any water. The temperature went up again but not that evening. The fever came on at midnight, went up to nearly 104°, and then began to fall again. As soon as it fell, I gave her the Warburg's tincture again, that was the evening of the 30th day, and from this point her temperature never rose again. She made a good recovery ; one of the most remarkable cases of fever I have treated. I tried *neem* oil also, only one dose, which she threw up at once. This was on the day previous to the administration of Warburg's. In this case, I cannot help thinking, Warburg's tincture had a good effect. It may have been a mere coincidence, but the malarial element was strongly marked in the case, as I shall explain in its proper place further on, and, I believe, it was not a mere coincidence.

After quinine and Warburg's tincture, the general treatment, although I have not said anything about it yet, must not be considered an unimportant item in all fevers. No amount of quinine or Warburg's tincture will be of any use without careful attention to the general treatment including the diet, and this is not only true of remittents but of all serious fevers. By general treatment must be understood not only a treatment of symptoms as they arise but also a treatment of those

pathological conditions upon which the pyrexia depends. Particular attention must be paid to the action of the emunctories so as to remove from the blood and tissues the various effete matters which help in maintaining the fever. Tepid sponging of the skin with vinegar and water is, I find, most useful in promoting the action of the skin and reducing temperature. It must be done thoroughly for at least half an hour at a time if any good is to be expected in a bad case. Diaphoretics either alone or combined with stimulants should be freely given every two hours or oftener according to the urgency of the case. I usually prescribe the following mixture and find that it works well. It is the No. 2 Diaphoretic Mixture of my hospital :—

R

Sodæ salicylatis	... grs. v.
Sp. amm. arom.	... ms. xx.
Sp. eth. nit.	... ms. xx.
Vin. antimon.	... ms. v.
Tinct. ipecac.	... ms. v.
Aquæ camph.	...ad. oz. i.

The ammonia is chemically incompatible with the salicylate of soda, but if the mixture be fresh, it will make no difference. In some cases it may be necessary to use strong remedies like aconite, jaborandi, phenacetin or antifebrin to promote perspiration. When I use them, I invariably combine them with ammonia or brandy, often both, and carefully watch the effects.

An antiseptic enema consisting of a pint of plain water, tepid or cold, to which two or three grains of the permanganate of potash have been added has often a wonderful effect if given early in the case. When the fever persists it may have to be repeated, for it is a mistake to suppose that one enema completely empties the bowels, and it is much better to give an enema, irksome though it be, than to give a lot of



nauseating purgatives by the mouth, which will only upset the stomach and prevent the patient from keeping down other medicines and food upon which his life depends. Ice, of course, is invaluable in fevers. I have given further on a synopsis of my fever treatment, showing the different headings under which I divide my treatment, and the drugs which I think are best suited for each purpose.

Among other points in the general treatment which I cannot show under any heading, I may mention that in the diarrhœa of fevers I find a combination of the salicylate of bismuth, grs. 3; salol, grs. 3 with Dover's powder, grs. 2; or in some cases beta-naphthol, grs. 3, in place of Dover's powder, has an excellent effect. For the vomiting of fevers, often an urgent symptom, I find hot water, plain, answers best. The patient will be sick two or three times perhaps, and bring up often a lot of venomous looking bile, but this will empty his stomach and he won't get sick again. It is not enough to give the hot water once, but every time he gets sick (after giving him five minutes rest to pull himself together). As soon as the vomiting stops, and the nausea subsides, little bits of ice should be given to suck continually. Soda-acid powders are also very useful.

Another important point is the kind of alcoholic stimulant to be given in fevers, when an alcoholic stimulant is needed. I think, there is none better than brandy or whisky. Under no circumstances would I allow wine of any kind champagne included, so long as the pyrexia lasts, and in my opinion no more fatal mistake could be made in the treatment of fevers than allowing wine of any kind to the patient as long as the fever continues; for, with a disordered state of the secretions and a high temperature, the wine almost immediately becomes vinegar in the stomach, by the process known in chemical phraseology as the acetous fermentation and any one can satisfy himself on this point by taking a glass

of champagne or port, or any other wine he likes, when he gets a good dose of fever and noting how he feels. The proper time to give the wine is during convalescence when the fever has left for some days.

I have seen one man at least being hurried to his doom with champagne, which was allowed as if it were so much milk or barley water, although instinctively, the patient did not like it. Fortunately it was stopped at my suggestion and the patient began to recover from that time. For a similar reason, if lime juice is ever allowed in fevers as a refrigerant, it should be given with caution, for all acids are bad, I think, while the fever lasts. They act locally as an irritant on the congested mucous membrane of the stomach and intestines. These, I think, are some of the points in the general treatment of fevers which require attention, and which I have mentioned, as text-books, as a rule, don't sufficiently make them clear.

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#### CHARTS VI (*a*), (*b*).

Take now group VI (*a*) and (*b*). These are cases of chronic ague, which, as far as my experience goes, are far from uncommon in India. What is called malarial cachexia is almost invariably present in these long standing cases. Pigmentation of the conjunctivæ and mucous membrane of the lips and tongue with the malarial pigment is often present. Clinically, the temperature chart alone without the aid of any symptoms will be sufficient for a diagnostic purpose. Brief and irregular periods of pyrexia followed by long and irregular periods of apyrexia will be sufficient to differentiate this disease from other fevers. In these cases, in addition to the shivering fits, anæmia, enlargement of spleen and pigmentation, you will often find intractable diarrhoea with œdema of feet and ankles, ascites and albuminuria, condi-

tions doubtless due to the extremely anæmic condition of the blood. Quinine, as a rule, has very little effect upon these chronic and obstinate forms of malarial affection. Arsenic, I think, gives better results. When neither quinine nor arsenic, alone or combined, succeed, it is well worth trying *neem* oil or argemone in these chronic affections, for it is just in these cases that I think they give the best results. If you look at Chart VI (a), you will find this point clearly illustrated. Change of air is often valuable in these cases. This is illustrated in case VI (b). The patient, a British officer of my regiment, contracted the disease at Pachmari, C. P., and was unable to shake it off although some three months regularly under treatment. He went home and made a good recovery, although not till he had about six more attacks after landing in Europe.

The nomenclature does not specify this type ; all cases of the intermittent type being included under ague, and yet you cannot call this either quotidian, tertian or quartan ague. Irregular or chronic ague would be the nearest name for this type.

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## CHART VII.

Take now Chart VII—Typho-malarial Fever. At the outset, I may be asked what I mean by typho-malarial fever. Is it a severe case of Typhoid Fever which is synonymous with Enteric Fever ? Or is it a severe case of Remittent Fever with some typhoid symptoms superadded ? I should say neither. It means that two separate and distinct diseases, enteric fever being one and remittent fever being the other, are running their course through the patient's system at one and the same time, and this is not more extraordinary than the co-existence of such zymotic diseases as measles and scarlet fever. Dr. Millard, Medical Superintendent, City

Hospital, Birmingham, in a recent number of the *British Medical Journal*, says :—

“In the course of my comparatively short experience, I have frequently seen cases of measles, scarlet fever, diphtheria, whooping cough, varicella, typhoid and small-pox grafted upon one another in an almost endless variety of combinations.”

Unfortunately the Nomenclature does not recognise this fever which, as far as my experience is concerned, is not very common in the mofussil stations. I think it deserves a place in the Nomenclature.

Now to analyse case VII, I have to explain on what grounds I based my diagnosis.

If you look at the Chart, you will find that it does not resemble one of Remittent Fever ; it resembles more a case of Enteric Fever. The duration (thirty-one days) is too long for Remittents, as I have already explained. Then, again, the typhoid state was very marked in the case before the end of the second week, and continued to the termination of the case. The low muttering delirium, the drowsiness, the dull heavy features, the subsultus tendinum, the rapid almost imperceptible pulse, the dry brown tongue with sordes on the teeth, the involuntary defæcation and micturition, a group of symptoms which taken together constitute what is called the typhoid state, and the presence of which is more or less special to typhoid fever were unmistakably present in this case. Then, again, there was diarrhœa in this case although the other abdominal symptoms usual in typhoid were absent. Finally, the violent oscillations during the fourth week of the fever are more characteristic of typhoid fever than any other fever. These considerations led me to conclude that the typhoid element was present in the case, although after careful enquiry, I failed to detect any source of infection. But now look at the other side. In this case there was a clear history of long standing malarial infection. She had recently had several



attacks of ague, with shivering fits; the spleen was distinctly enlarged before this fever began. Quinine had a decided controlling effect upon the pyrexia. The invasion was sudden. Mark how the temperature went up to 104° Fahr. on the evening of the first day, and fell to normal on the morning of the second day. The gradual ladder-like rise of typhoid is absent or ill-defined. The subsequent course of the fever is irregular. Then, again, it was the feverish season of the year (October) when Remittents were prevalent in the station. All these points put together made me think that the malarial element was present, and I believe if I had treated this case as one of pure enteric, with an expectant treatment, she would most probably have died. Then, again, I think, the violent fluctuations in temperature at the end may possibly be ague, a change from the Remittent to the Intermittent type, for a Remittent often ends in an Intermittent, though I must confess I have never seen such marked fluctuations. The sudden rise of temperature on the evening of the first day and the fall to normal on the morning of the second day is, I think, a conclusive proof that the malarial element was present. This would never have occurred if it had been a case of pure enteric fever, and it is just these little details which will often give the greatest help in making a diagnosis on a purely clinical basis.

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#### CHARTS VIII (a), (b), (c).

Take now the next group VIII (a), (b), (c)—Tropical Fever. I have already explained my views of the etiology of this disease. I will endeavour now to explain the clinical features and differential diagnosis, although the task is not easy, for it is one thing to understand, another to explain, especially when there is a difficult subject to handle.

*Chart VIII (a)*—I will first give the history and notes of this case. The patient, a sepoy of my Regiment, was



admitted into the hospital at Benares on the 3rd January 1890. He stated that the day previous he had a shivering fit in the lines, and that for two or three days previous to that again he had some fever, but as he did not think much of it, he did not go to hospital. The day of admission (3rd January) represents then about the fifth day of his illness, and I have marked it accordingly in the chart. The season of the year was healthy, the previous health and constitution of the patient, good. At first I thought it was a little ague, but after two or three days I changed the diagnosis to Remittent Fever. I treated him with quinine and diaphoretics, and the temperature fell nearly to the normal line on the tenth day of the disease. This was, after the shivering fit, an additional proof that the fever was of malarial origin. On the evening of the eleventh day it rose again. I still thought it was malarial and treated it accordingly, but now the quinine had no effect in stopping the fever completely as it did on the tenth day. However, the fever was not very high, there were no urgent symptoms, so I went on with the quinine, and, on referring to my notes, I find the following entry under date 16th January (eighteenth day of disease) :—

“Is now doing well, there is a slight rise of temperature in the evening, but his general condition is good. Urine examined, no albumen.”

Again I find the following entry under date 24th January (twenty-sixth day of disease) :—

“The fever has not yet left him entirely, but it is not so high as before.”

Ordered quinine with diaphoretics. T. D. to be continued as before. On 27th January I noted as follows :—

“Temperature very high, pulse very fast and weak, has had diarrhœa since 26th. The case is looking very critical this morning.”

Ordered digitalis, aconite, and brandy mixture to be taken every hour. Vinegar and tepid water sponging. To be fed on milk and arrowroot in very small quantities frequently. He died that afternoon at 2 P.M.

After making a *post-mortem* and finding intestinal ulceration, I made the following entry :—

“The case was no doubt one of true typhoid fever, but in the absence of the typical signs and symptoms of the disease during life, it was impossible to make a correct diagnosis. Such important symptoms as the rose-colored eruption, epistaxis, intestinal hæmorrhage, the marked variations in temperature which occur in the latter part of the disease were entirely absent, while the abdominal symptoms, so diagnostic of the disease, namely, pain and tenderness in the right iliac fossa with gurgling, tympanitis and, most important of all, diarrhœa were absent till near the end of the case.”

I may add here what I omitted to enter then, that the typhoid state was absent right throughout. The mind was clear almost to the very end.\*

These notes are not so full as I should like them now to be, but I have faithfully copied them as I find them recorded, and, at all events, I have given the history of the case the temperature chart, and the clinical symptoms with the *post-mortem* appearances (*vide* my notes at the foot of the chart). I will now analyse this case with the reader, but before doing so, I will ask the reader to analyse it himself and think out carefully what it was. Until he has done this, he must not read my analysis of the case, for only then perhaps, he will understand the doubts and difficulties of diagnosis in this case.

To analyse then, the first question is—was it Remittent Fever? I think not. The case occurred at the end of December when Remittents were absent in the station. The weather was dry and cold, most perfect weather. The pre-

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\* More correctly speaking, some typhoid symptoms were present about the 2nd week but of a transient character, see foot-notes in the Chart.

vious history of the case was good. He was a strong healthy man who had not suffered from ague recently. Then, again, consider the mode of invasion, it was gradual. The man did not even come to hospital for four days after his illness began. Look at the temperature chart and compare it with the four temperature charts of Remittents I have previously given? Is there any resemblance? Look at the duration of the fever (29 days)? Is this like Remittent? No.

Add to this the fact that quinine was given day after day nearly to the end, under the impression that it was malarious fever, but without any good. The spleen was enlarged, but so it may be in enteric fever, and by itself was a sign of doubtful value. Taking all these facts together, it is, I think, reasonable to infer that the malarial element was absent in this case. Now let us see if it was enteric fever. The more or less gradual and insidious way in which the fever began, the duration of the fever, and above all the *post-mortem* appearances all point to enteric fever. In fact I returned this case eventually as one of enteric fever, and recorded that it was a case of true enteric fever after making the *post-mortem*. But was it true enteric fever? I was satisfied for a time, after making the *post-mortem*, that it was enteric fever, but for days afterwards, when I reviewed the whole case in my mind, and analysed it in every possible way I could think of, the doubts and uncertainties which were dispelled seemed to come back with redoubled force. I asked myself, if it *was* enteric fever, where did he get the infection from? I had made particular enquiries about the drinking water. He had never used any other water except what the other men in his company had used, and if it was the drinking water, how was it that no one else got the disease? Of course there may have been some other accidental cause of infection, but it was not likely, as far as I

could judge from careful enquiries : then I looked at the temperature chart. I could see no resemblance between it and one of true enteric fever (compare Charts VIII (*a*) and IX.) How was it again, I said, that all the clinical phenomena of enteric fever were absent in the case. The gradual invasion is there, but the continued high fever of the second week, the characteristic rash, the marked abdominal symptoms, the typhoid state, the epistaxis, the deafness, the intestinal hæmorrhage, the diarrhœa, all these symptoms which one might legitimately expect in a fatal case were in this case absent during the second and third weeks. These thoughts distracted my mind for a long time afterwards and although I cannot prove it now, I am certain, as far as it is possible to be so, that this was neither a case of Remittent Fever nor a case of Enteric Fever, but one of intestinal poisoning as described in the etiology of Tropical Fever.

The accumulation of frothy bile in the whole of the intestinal canal from the duodenum to the rectum, to which I attached no importance when I made the *post-mortem* was, I now believe, the source from which a septic infection of the blood had taken place which caused the ulceration and eventually killed the patient ; and this view which was very hazy at first, has now gradually become clear to me, from subsequent clinical experience of such cases, for I have treated now several cases of this nature, at least cases which I thought were of this nature, with a more or less specific antiseptic and eliminative treatment, the essence of which is the internal use of the salicylate of soda, and the systematic use of antiseptic enemata consisting of tepid or cold water with Condy's fluid with the result that the disease, where I suspected it, was cut short to about a week's duration with recovery in each case. Take now case VIII (*b*) which, I think, throws further light on the subject. This case, also of a sepoy, occurred in June 1896, at Bareilly. It was the height



of the dry season when the malarial influence is at its lowest ebb. The previous history of the case was good ; there was no splenic enlargement, no anæmia, nothing in fact to warrant the supposition that it was a case of Remittent Fever, and yet if you cannot call it Remittent, what name can you give it ? The general constitutional disturbance was severe, it was complicated with pneumonia and the fever lasted for a week in spite of a vigorous eliminative treatment combined with quinine in antipyretic doses (grs. xv-xx). You can hardly call it "Simple Continued Fever." The only other name you can give it is abortive typhoid or mild enteric, but by whatever name it may be called, I will venture to submit that, in the absence of any history of enteric infection, the absence of a typical chart or of a chart having some remote resemblance at least to one of enteric fever, and the complete absence of all clinical phenomena on which alone a true diagnosis can be formed in any disease, one cannot, I think, be justified in calling a case like this, enteric fever.

Chart VIII (c) is that of a case very similar to Chart VIII (b), as the foot-notes in the Chart will show. Before I pass on to the next Chart (No. IX), I will here draw the attention of the reader to the striking similarity between my Chart VIII (a) and Chart XXIV given by Whitehead, in his essay on Tropical Typhoid, also a fatal case with intestinal ulceration, in which, too, apparently, there was some difficulty in diagnosis, for, he says :—

"After frequent consultations it was decided that the disease from which he was suffering was *not* Typhoid Fever."

Judging by the Chart, I believe, it was one of these cases of intestinal poisoning.

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## SUMMARY OF TROPICAL FEVER.

To summarise, then, my views about Tropical Fever, I may state, that, etiologically it is a fever caused by the absorption of putrefaction products from the intestinal canal, the initial or starting point being a disorder of the skin and liver functions brought on by purely climatic causes in a tropical country ; that, clinically, it is a fever of a continued type with an irregular temperature chart which under an expectant treatment will resemble enteric fever and run on for three or four weeks with often a fatal result, the *post-mortem* revealing lesions of the small intestine identical with those of true enteric fever, but which under an eliminative and antiseptic treatment exhibited as early as possible will resemble remittent fever with a duration of from eight to ten days, sometimes less, with almost invariably a favourable termination.

I believe firmly that a recognition of this fever will eventually remove the many doubts and perplexities connected with the enteric fever question in India, and I appeal to all medical men serving in India to give this fever the consideration it deserves, the subject being one on which a vital issue depends, and it is only by the accumulated experience, observation and independent testimony of medical men in different parts of India that a searching light will be thrown on this important subject of which I have given but a bare outline. If I have not succeeded in making any point clear in the preceding description, and should any one let me know what it is—I shall endeavour, as far as it may be in my power—to give him the required information.

## CHART IX.

I now come to Chart IX—True Enteric Fever. When I say true enteric fever, it means a fever absolutely identical with the enteric fever of Europe and other cold countries, both etiologically and clinically.

The first case I saw was at Lucknow in 1884. In those days the disease was considered rare even for British troops. I submitted this case in a special report to the then Surgeon-General, Her Majesty's Forces, Simla, who was kind enough to criticise my notes in a long letter, and to inform me that in his opinion the case was correctly diagnosed. (Letter 2197, dated Simla, 30-6-84).

Chart No. IX represents another typical case, and was published in the *Indian Medical Gazette* for December 1892.

In this case I was able to trace the disease to its source of infection. It occurred at Fort Aijal in North Lushai Hills. The camp was situated on the top of a ridge as also a hospital latrine, and after a shower of rain, the water from the surface of the ground in and about this latrine used to flow down the side of the ridge, and this man had drunk some of this water (from a particular spot) which I examined and found to have a distinctly foecal smell. There was not the slightest doubt about it.

In this case observe how typical the chart is. The gradual rise of temperature during the first week, the high temperature maintained during the second week, and the gradual fall again towards the end, with the early appearance of the typhoid state (7th day), accompanied with diarrhoea and the usual abdominal symptoms of the disease, all these combined, with a distinct history of infection through drinking water, left no doubt in my mind that the case was one of true enteric fever.

There was no rash, no epistaxis, or intestinal hæmorrhage, and the marked fluctuations of temperature during the

third week were likewise absent, but the chart will be greatly modified in any fever by the treatment, and so it was, I think, in this case. Thus the marked fall in the chart on the evening of the sixth day to  $101^{\circ}$  from nearly  $105^{\circ}$ , likewise the fall to  $102^{\circ}$  on the forenoon of the 7th day were the effects of a strong antipyretic treatment, which was well borne by the patient.

It will be interesting to compare this chart now with the charts I have previously given of other fevers, to see if there is any possible resemblance. I do not think there is any, so that it will appear that the temperature chart alone is a most valuable guide in the diagnosis of fevers.

I have hitherto not said a word about the value of the microscope in the diagnosis of fevers, but it must not be supposed for that reason that I am no believer in it. There can be little doubt that the microscope can afford valuable aid in doubtful cases. Take for instance case VIII (a).

In this case an examination of the blood, if it had shown the absence of malarial parasites and the absence of the specific reaction by the Widal test, would have at least proved beyond doubt that the case was neither one of malarial fever nor one of enteric fever, whatever other fever it may have been.

To do this work thoroughly, however, requires a great deal of time and a continuity of work which the conditions of military service in India do not permit, nor are the services of a bacteriologist available in every station in India for a doubtful case ; so that the Army Medical Officer will have to depend entirely upon his clinical experience and professional acumen for a correct diagnosis in all cases.

It is for this reason that I have ventured to publish this record of my experience in the fever line, and hope it may be of some use to those commencing their medical career in India, as well as to the student of Tropical Diseases in other parts of the world who, for want of opportunities, may not be familiar with the subject.

## SYNOPSIS OF FEVER TREATMENT.

*Intestinal Evacuation—*

Water enema.  
 Calomel.  
 Citrate of magnesia.  
 Sulphate of magnesia.  
 Pil. cascara co. (Martindale &  
 Westcott's formula.)  
 Pil. rhei co.  
 Pil. colocynth co.

*Intestinal Antisepsis—*

Antiseptic enema (Condy's.)  
 Salicylate of soda.  
 Salol.  
 Sulpho-carbolate of soda.  
 Quinine.  
 Thymol.  
 Creosote.  
 Beta-naphthol.  
 Aqua chloroformi.

*Diaphoretics—*

Nitric ether.  
 Sp. amm. aromatic.  
 Vinum antimonialie.  
 Tinet. ipecac.  
 Tinet. aconite.  
 Tinet. jaborandi.  
 Phenacetin.  
 Antifebrin.  
 Warburg's tincture (for malarial  
 fever.)  
 Spiritus camphoris.  
 Tepid sponging.  
 Hot water (internally.)

*Antipyretics—*

Salicylate of soda (best.)  
 Quinine (xv—xx gr. dose.)  
 Phenacetin.

I do not believe in the Expectant treatment of fevers. I think it is a mistake in the treatment of fevers in India.

*Antipyretics—(ctd).*

Antifebrin.  
 Ice.

*Hepatic Stimulants—*

Salicylate of soda (best for  
 fever.)  
 Tinet. ipecac.  
 Vinum antimonialie.  
 Pil. hydrarg. cum colocynth cum  
 rhei. co. cum cascara co.  
 Ammonium chloride.  
 Taraxacum.

*Diuretics—*

Potass. acet.  
 Potass. nitras.  
 Other alkalies.  
 Nitric ether.  
 Tinet. digitalis.  
 Camphor.

*Stimulants—*

Brandy or whisky.  
 Sp. ammonia aromatic.  
 Sp. etheris.  
 Hot water (internally.)

*Diet—*

Milk	} alone or equal parts mixed.
Barley water	
Ice.	

*Malarial Specifics—*

Quinine.  
 Warburg's tincture.  
 Arsenic.  
 Neem oil.  
 Argemone Mexicana.

*Tonics—*

All vegetable tonics.  
 Iron.  
 Arsenic.











